

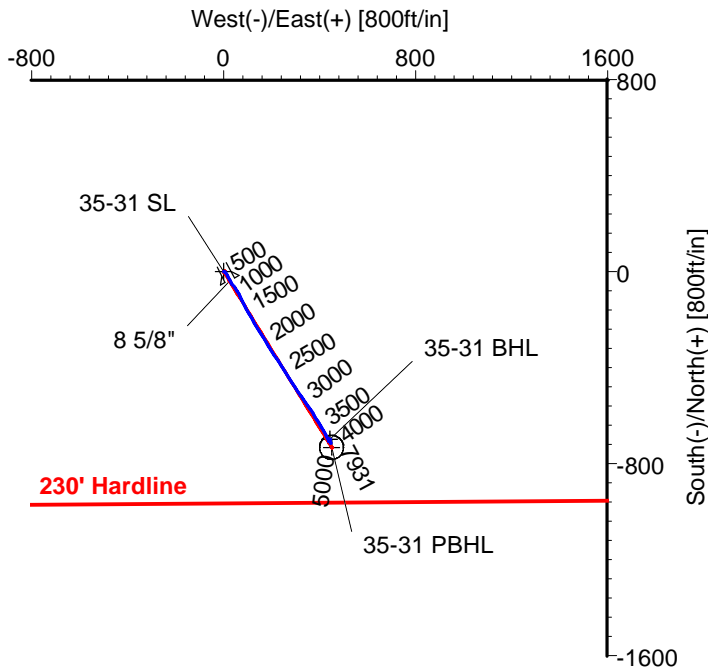
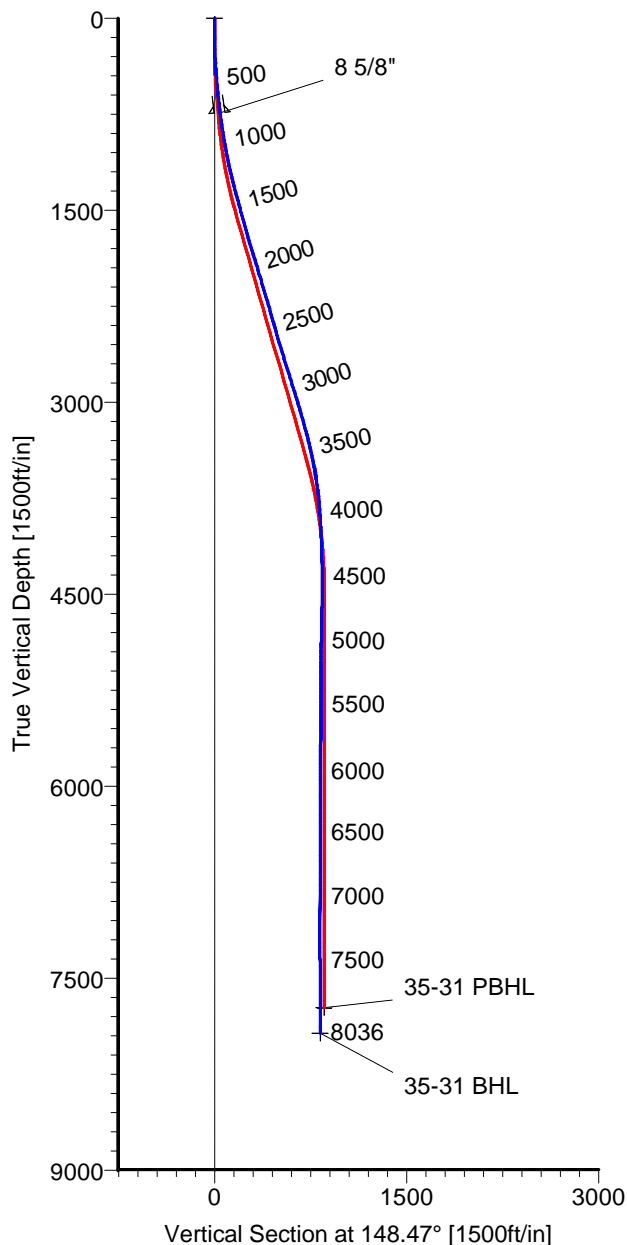
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Vonderlage 19-31 Pad
Well: 35-31
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.44°
Magnetic North: 8.46°

Magnetic Field
Strength: 53058nT
Dip Angle: 66.86°
Date: 05/06/2011
Model: IGRF2010



CASING DETAILS

No.	TVD	MD	Name	Size
1	741.03	743.00	8 5/8"	8.625

LEGEND

— 35-31,Original Hole,Plan #1
— Original Hole

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
35-31 SL	0.00	0.00	0.00	40°10'35.900N	104°49'32.718W	Point
35-31 PBHL	7732.00	-732.49	449.40	40°10'28.628N	104°49'27.000W	Circle (Radius: 50)
35-31 BHL	7931.42	-699.10	442.41	40°10'28.958N	104°49'27.087W	Point

Wellpath: (35-31/Original Hole)

ALLIS CHALMERS DIRECTIONAL DRILLING SERVICES
911 Regional Park Drive Houston, Texas 77060
Phone: 713-934-9600 Fax: 713-934-9067



**DIRECTIONAL
DRILLING SERVICES**

Created By: Ivonne Gonzalez

Date: 05/05/2011

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Vonderlage 19-31 Pad Well: 35-31 Wellpath: Original Hole	Date: 05/05/2011 Co-ordinate(NE) Reference: Well: 35-31, Grid North Vertical (TVD) Reference: 4832'GL+15'KB 4847.0 Section (VS) Reference: Well (0.00N,0.00E,148.47Azi) Survey Calculation Method: Minimum Curvature	Time: 10:21:50 Page: 1 Db: Adapti
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Field: Weld County, CO Map System: US State Plane Coordinate System 1983 Geo Datum: GRS 1980 Sys Datum: Mean Sea Level	Map Zone: Colorado, Northern Zone Coordinate System: Well Centre Geomagnetic Model: IGRF2010
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Site: Vonderlage 19-31 Pad Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4832.00 ft	Northing: 1307911.29 ft Easting: 3188407.46 ft Latitude: 40 10 35.900 N Longitude: 104 49 32.718 W North Reference: Grid Grid Convergence: 0.44 deg
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Well: 35-31 Well Position: +N/-S 0.00 ft Position Uncertainty: 0.00 ft	Slot Name: 35-31 Well Position: +N/-S 0.00 ft Position Uncertainty: 0.00 ft
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Wellpath: Original Hole Current Datum: 4832'GL+15'KB Magnetic Data: 05/06/2011 Field Strength: 53058 nT Vertical Section: Depth From (TVD) ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.89 deg Mag Dip Angle: 66.86 deg Direction: deg
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Survey Program for Definitive Wellpath Date: 05/05/2011 Validated: No Version: 0	Toolcode Tool Name
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Actual From	To	Survey	Toolcode	Tool Name
51.00	7991.00	Survey #1 (51.00-7991.00)	MWD	Std MWD
8036.00	8036.00	Survey #2 (8036.00-8036.00)	Project	Projection

Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
51.00	0.70	95.40	51.00	-0.03	0.31	0.19	1.37	1.37	0.00	MWD
142.00	0.70	97.50	141.99	-0.15	1.41	0.87	0.03	0.00	2.31	MWD
231.00	1.40	122.50	230.98	-0.81	2.87	2.19	0.92	0.79	28.09	MWD
321.00	3.00	126.70	320.91	-2.81	5.69	5.37	1.79	1.78	4.67	MWD
428.00	4.90	146.40	427.65	-8.29	10.46	12.53	2.16	1.78	18.41	MWD
519.00	5.60	152.00	518.27	-15.45	14.70	20.85	0.95	0.77	6.15	MWD
610.00	5.80	153.40	608.82	-23.48	18.84	29.86	0.27	0.22	1.54	MWD
698.00	6.30	152.00	696.33	-31.72	23.10	39.11	0.59	0.57	-1.59	MWD
743.00	6.97	152.00	741.03	-36.31	25.54	44.30	1.49	1.49	0.00	8 5/8"
792.00	7.70	152.00	789.63	-41.83	28.48	50.55	1.49	1.49	0.00	MWD
882.00	9.00	144.30	878.68	-52.87	35.41	63.59	1.90	1.44	-8.56	MWD
973.00	9.70	143.50	968.47	-64.81	44.13	78.32	0.78	0.77	-0.88	MWD
1064.00	11.10	148.10	1057.97	-78.42	53.32	94.72	1.79	1.54	5.05	MWD
1155.00	12.50	149.50	1147.04	-94.34	62.95	113.33	1.57	1.54	1.54	MWD
1245.00	13.70	151.60	1234.70	-112.11	72.96	133.71	1.43	1.33	2.33	MWD
1337.00	14.80	154.10	1323.87	-132.26	83.27	156.28	1.37	1.20	2.72	MWD
1427.00	15.50	154.10	1410.74	-153.42	93.55	179.69	0.78	0.78	0.00	MWD
1517.00	15.30	151.30	1497.51	-174.65	104.50	203.52	0.86	-0.22	-3.11	MWD
1608.00	15.30	148.10	1585.29	-195.38	116.61	227.52	0.93	0.00	-3.52	MWD
1700.00	15.30	149.90	1674.03	-216.18	129.11	251.79	0.52	0.00	1.96	MWD
1790.00	16.50	148.80	1760.58	-237.39	141.69	276.44	1.37	1.33	-1.22	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Vonderlage 19-31 Pad Well: 35-31 Wellpath: Original Hole	Date: 05/05/2011 Co-ordinate(NE) Reference: Well: 35-31, Grid North Vertical (TVD) Reference: 4832'GL+15'KB 4847.0 Section (VS) Reference: Well (0.00N,0.00E,148.47Azi) Survey Calculation Method: Minimum Curvature	Time: 10:21:50 Page: 2 Db: Adapti
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Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1881.00	17.40	146.70	1847.63	-259.82	155.86	302.96	1.20	0.99	-2.31	MWD
1972.00	17.20	149.50	1934.51	-282.78	170.15	330.02	0.94	-0.22	3.08	MWD
2062.00	16.90	148.80	2020.56	-305.44	183.69	356.40	0.40	-0.33	-0.78	MWD
2154.00	16.50	147.40	2108.68	-327.88	197.65	382.84	0.62	-0.43	-1.52	MWD
2244.00	16.50	146.70	2194.97	-349.33	211.55	408.39	0.22	0.00	-0.78	MWD
2335.00	16.40	144.60	2282.25	-370.60	226.09	434.12	0.66	-0.11	-2.31	MWD
2426.00	16.00	145.00	2369.64	-391.35	240.73	459.46	0.46	-0.44	0.44	MWD
2517.00	16.20	150.20	2457.07	-412.64	254.23	484.67	1.60	0.22	5.71	MWD
2607.00	16.00	148.90	2543.54	-434.15	266.88	509.62	0.46	-0.22	-1.44	MWD
2698.00	17.10	147.80	2630.77	-456.22	280.48	535.54	1.26	1.21	-1.21	MWD
2789.00	17.60	148.10	2717.63	-479.22	294.88	562.68	0.56	0.55	0.33	MWD
2879.00	17.10	144.80	2803.54	-501.58	309.70	589.49	1.23	-0.56	-3.67	MWD
2970.00	17.40	145.30	2890.44	-523.70	325.16	616.42	0.37	0.33	0.55	MWD
3061.00	16.70	143.90	2977.44	-545.45	340.61	643.04	0.89	-0.77	-1.54	MWD
3152.00	16.20	145.30	3064.72	-566.45	355.54	668.75	0.70	-0.55	1.54	MWD
3242.00	15.80	147.10	3151.23	-587.06	369.34	693.54	0.71	-0.44	2.00	MWD
3333.00	15.30	149.50	3238.90	-607.81	382.16	717.93	0.90	-0.55	2.64	MWD
3424.00	13.50	147.40	3327.04	-627.10	393.98	740.55	2.06	-1.98	-2.31	MWD
3515.00	12.00	148.50	3415.79	-644.12	404.65	760.63	1.67	-1.65	1.21	MWD
3605.00	10.60	146.70	3504.05	-659.02	414.08	778.26	1.60	-1.56	-2.00	MWD
3696.00	8.40	154.10	3593.80	-671.99	421.58	793.25	2.76	-2.42	8.13	MWD
3787.00	7.40	152.00	3683.93	-683.15	427.24	805.71	1.14	-1.10	-2.31	MWD
3877.00	5.30	155.20	3773.38	-692.04	431.70	815.63	2.37	-2.33	3.56	MWD
3968.00	4.00	146.70	3864.08	-698.51	435.21	822.97	1.61	-1.43	-9.34	MWD
4059.00	3.70	146.70	3954.87	-703.61	438.56	829.08	0.33	-0.33	0.00	MWD
4150.00	2.80	143.90	4045.72	-707.86	441.48	834.23	1.00	-0.99	-3.08	MWD
4241.00	1.40	146.70	4136.66	-710.59	443.40	837.56	1.54	-1.54	3.08	MWD
4422.00	1.10	139.70	4317.62	-713.76	445.74	841.48	0.19	-0.17	-3.87	MWD
4604.00	1.10	352.40	4499.60	-713.36	446.64	841.61	1.16	0.00	-80.93	MWD
4785.00	1.00	321.90	4680.57	-710.40	445.44	838.46	0.31	-0.06	-16.85	MWD
4967.00	1.00	313.00	4862.55	-708.06	443.29	835.35	0.09	0.00	-4.89	MWD
5148.00	0.70	261.70	5043.53	-707.15	441.04	833.39	0.43	-0.17	-28.34	MWD
5330.00	0.80	283.80	5225.51	-707.00	438.71	832.05	0.17	0.05	12.14	MWD
5511.00	0.20	303.90	5406.51	-706.53	437.22	830.86	0.34	-0.33	11.10	MWD
5693.00	0.20	302.50	5588.50	-706.18	436.69	830.29	0.00	0.00	-0.77	MWD
5875.00	0.40	351.00	5770.50	-705.38	436.32	829.42	0.17	0.11	26.65	MWD
6056.00	0.50	80.30	5951.50	-704.62	437.00	829.13	0.35	0.06	49.34	MWD
6238.00	0.70	71.10	6133.49	-704.13	438.84	829.66	0.12	0.11	-5.05	MWD
6420.00	0.40	20.10	6315.48	-703.17	440.11	829.51	0.30	-0.16	-28.02	MWD
6601.00	0.40	22.90	6496.48	-702.00	440.57	828.75	0.01	0.00	1.55	MWD
6783.00	0.50	340.80	6678.47	-700.66	440.56	827.61	0.18	0.05	-23.13	MWD
6965.00	0.70	315.50	6860.46	-699.12	439.52	825.75	0.18	0.11	-13.90	MWD
7147.00	0.70	307.00	7042.45	-697.66	437.85	823.63	0.06	0.00	-4.67	MWD
7328.00	0.70	154.10	7223.44	-697.99	437.45	823.70	0.75	0.00	-84.48	MWD
7510.00	0.50	119.60	7405.43	-699.38	438.62	825.50	0.22	-0.11	-18.96	MWD
7691.00	0.50	117.20	7586.43	-700.13	440.01	826.87	0.01	0.00	-1.33	MWD
7836.58	0.44	55.38	7732.00	-700.10	441.04	827.38	0.33	-0.04	-42.46	35-31 PBHL
7872.00	0.50	43.00	7767.42	-699.91	441.25	827.33	0.33	0.17	-34.96	MWD
7991.00	0.50	61.60	7886.42	-699.29	442.07	827.22	0.14	0.00	15.63	MWD
8036.00	0.50	61.60	7931.42	-699.10	442.41	827.25	0.00	0.00	0.00	35-31 BHL

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Vonderlage 19-31 Pad Well: 35-31 Wellpath: Original Hole	Date: 05/05/2011 Time: 10:21:50 Page: 3 Co-ordinate(NE) Reference: Well: 35-31, Grid North Vertical (TVD) Reference: 4832'GL+15'KB 4847.0 Section (VS) Reference: Well (0.00N,0.00E,148.47Azi) Survey Calculation Method: Minimum Curvature Db: Adapti
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Targets

Name	Description	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->				
								Deg	Min	Sec	Deg	Min	Sec		
35-31 SL			0.00	0.00	0.00	1307911.29	3188407.46	40	10	35.900	N	104	49	32.718	W
35-31 PBHL			7732.00	-732.49	449.40	1307178.81	3188856.86	40	10	28.628	N	104	49	27.000	W
-Circle (Radius: 50)															
35-31 BHL			7931.42	-699.10	442.41	1307212.19	3188849.87	40	10	28.958	N	104	49	27.087	W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
743.00	741.03	8.625	9.875	8 5/8"